

December 8, 1969

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[redacted]
Post Office Box 8274
Southwest Post Office
Washington, D. C. 20024

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Subject: Contract No. [redacted]

Gentlemen:

The purpose of this letter is to justify the use of our computer from time to time under this contract.

First, the purpose of the contract was (in part) to provide computerized techniques and programs to permit the handling of vast quantities of data involved in the utilization of MTF techniques and Mensuration Data handling procedures. This is contemplated in Phase II, Subphase B of the prime contract and paragraph 2 of Attachment 1 to Supplemental Agreement No. 4.

When an analyst, engineer, or programmer is preparing, writing or evolving programs of this nature he requires ready access to a machine to permit verification of workability of his approaches. This may include just a brief "shot" on the machine of a very few minutes to check a subroutine or a longer period to check out a whole program. In any event, sending or carrying these problems to your area for computer usage would unduly delay the program and would unduly increase the cost of the program through the accrual of greatly increased travel costs.

Utilization of computer time was necessary during the first portion of the contract to verify the research and development required. Prior to this contract, image assessment procedures currently exist for black and white materials only. During this program we conducted the research and development necessary to generate a color image assessment technique based on their current measures that could be applied to color tri-pack materials. Our effort in the computer programming area included the definition of vector and matrix properties of color materials. We then applied these to noise assessment, ensemble averaging and modulation transfer function. We also evolved an initial method for generating valid effective exposure tables for color materials and presented information concerning the integral to analytical density conversion for three-color material.

Under Supplemental Agreement #4 we delivered the following programs, subroutines and packages:

- a. Fortran Subroutines ALPHAT and ALPHAF.
- b. Color exposure table generator program including subroutines TWOCUR and Invert.

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- c. Characteristic vector program.
- d. Color ensemble averaging program.
- e. Exposure table generation routine (SELGEN).
- f. Normalization of Exposure Tables.
- g. Transmittance to Density Conversion (DIRCOS).
- h. System Color Expansion (SOL and SIMQ).
- i. Modulation Transfer Function Calibration

You can see that a tremendous amount of work has been accomplished. In face of the work accomplished and the reports and documentation delivered, I feel that we have been most conservative in our utilization of computer time. Request that computer expenditures in the amount of 81.74 hours be approved.

I trust this meets all of your requirements. If you have any questions, please contact me.

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